

## **REMARKS**

Favorable reconsideration of this Application and the Office Action of September 27, 2004 are respectfully requested in view of the foregoing amendments and the following remarks.

Claims 1 to 68 remain under consideration in this application. The second claim 23 has been renumbered as claim 24. This correction in the claim number is not a change made for patentability purposes; rather, it is merely correction of a formal matter not related to patentability.

Applicant's attorney thanks Examiner Christopher M. Keehan for providing, in response to a telephone call from counsel for Applicants, copies of the two Provisional Application documents relied upon in the Office Action.

It is also noted with kind appreciation that the Examiner has indicated the subject matter of claims 4, 5, 8, 9, 13-16, 19-21, 25, 26, 29, 30, 34-37, 40-43, 46-48, 51-59, 62-64 and 68 are drawn to allowable subject matter if the Section 112 rejection is overcome and the claims are rewritten to include all the limitations of the base claim and any intervening claims. It is submitted that the Section 112 rejection is erroneous as stated in the following paragraph and that the base claims are also patentable for at least the reasons set forth herein after. Thus, it is unnecessary to write these allowable claims to include the limitations of any base or intervening claims.

The rejection of claims 1 to 68 under 35 U.S.C. 112, second paragraph, as being indefinite is respectfully traversed. It is submitted that there is no indefiniteness in the

claims and that one skilled in the art clearly understands the claim terminology, especially when read in light of the specification. The PTO states that:

“In claims 1 and 2, on pages 57, 59, 60 and 61, applicant has claimed structures that are not clearly defined. For example, in Structures (1A), (1B), and (1C), applicant has claimed a carboxylic group with parentheses. However, it is not clear what is meant by the parentheses. Normally, this would indicate a polymeric chain but there is no indication that this is the case. Structures (III), (IV) and (VI) also contain these parentheses (pages 59 and 60).”

It is respectfully submitted that this position is erroneous. In Structures (1A), (1B), and (1C) of claim 1 it is clear that the parentheses embrace the whole of Structures (1A), (1B), and (1C) and not just the carboxylic moiety because the parentheses are placed in the open bonds. Moreover, it is additionally clear that the parentheses around each of Structures (1A), (1B), and (1C) represent units of a polymeric chain because the phrase prior thereto in claim 1 states “A **copolymer** comprising ....**repeating unit comprising one or more units** selected from the group.....**Structures (1A), (1B), and (1C)**. Thus, it is clear that the parentheses in Structures 1A), (1B), and (1C) embrace repeating units of a polymeric chain, just as the PTO states is normally the case. The same is true for Structures (III), (IV) and (VI) in claims 1 and 2 also since immediately preceding these structures is the phrase “...**repeating unit represented by Structure...**” and that these are units of the “**copolymer**” recited in line 1 of the claims. Thus, it is also clear that Structures (III), (IV) and (VI) represent units of a polymeric chain. Therefore, the USPTO is respectfully requested to reconsider and withdraw this rejection of the claims under section 112, second paragraph.

The rejection of claims 1, 2 6, 7, 17 and 18 under 35 U.S.C. 102(b) and the rejection of claims 3 and 10-12 under 35 U.S.C. 103 over the disclosure in Bonafini et al. (US 6,586, 548 B2) and the provisional application thereof are both respectfully traversed.

Firstly, as regards the Section 102 (b) rejection, this rejection is based on the wrong subsection of Section 102. The Bonafini et al. patent (that issued July 1, 2003) did not issue more than one year prior to the present Application's filing date of October 31, 2003 and not until after the present application's priority date of its provisional application filing date of October 31, 2002. Thus, any rejection on the Bonafini et al. patent must be under Section 102(a), not 102(b).

Secondly, no matter what subsection of Section 102 or 103 the rejections are based, the rejections are erroneous since the disclosure in Bonafini et al. neither anticipates nor renders obvious the claimed subject matter. Although Bonafini et al. disclose copolymers comprising repeating units of a POSS compound with other specific monomers, there is no disclosure of copolymers of a POSS compound with other monomers where the other monomers containing an "acid laible" group as required by the claims of the present invention. The copolymers of Bonafini et al. are copolymers for ophthalmic lenses (not for photosensitive microelectronic compositions) and therefore have no need for, and would in fact want to avoid, employing monomers with acid laible groups. Thus, none of the polymers disclosed or taught by Bonafini et al. are not within the scope of Applicants claims and therefore provide no basis for a lack of novelty rejection under section 102. Additionally, there is no teaching in Bonafini et al. to render obvious, to one skilled in the art, replacing the other monomers of their copolymers with monomers having acid laible groups, and in fact to do so would be contrary to the ophthalmic lenses reasons for the Bonafini et al. copolymers. Therefore, it is clear that no claims may be rejected under either Section 102 or 103 over the disclosure in Bonafini et al. and the PTO is respectfully requested to reconsider and withdraw the two rejections of claims over this patent.

The rejection of claims 1, 2, 6, 7, 17, 18, 22, 23, 27, 28, 38, 39, 44, 45, 49, 50, 60, 61, and 65-67 under 35 U.S.C. 102(b) and the rejection of claims 3, 10-12, 24, and 31-33 under 35 U.S.C. 103 over Gonsalves (US 2002/0182541 A1) are both respectfully traversed.

Firstly, as regards the Section 102 (b) rejection, this rejection is based on the wrong subsection of Section 102. The Gonsalves publication (that published on December 5, 2002) did not publish more than one year prior to the present Application's filing date of October 31, 2003 and not until after the present application's priority date of its provisional application filing date of October 31, 2002. Thus, any rejection on the Gonsalves publication must be under Section 102(a), not 102(b).

Secondly, no matter what subsection of Section 102 or 103 the rejections are based, the rejections are erroneous since the disclosure in Gonsalves neither anticipates nor renders obvious Applicant's claimed subject matter.

It is to be noted that the disclosure in Gonsalves is wide ranging with various discrete aspects, and it is important to note to which aspect each disclosure relates.

The disclosure in Gonsalves contains no disclosure or teaching of a copolymer within the scope of the claims of the present application and therefore does not anticipate or render obvious any of the claimed subject matter. While it is true that Gonsalves discloses copolymers having a monomeric unit of Applicant's Structure (1) (i.e., a POSS compound) as well as a second repeating monomeric unit, the copolymers are not those of Applicant's copolymer claims. Applicant's claimed copolymers must have, in addition to a repeating unit of Structure (1A, 1B or 1C), at least one other repeating unit of Structure (III) wherein  $R^{12}$  is an acid labile group, **with the proviso that when  $R^{12}$  is t-butyl, an additional repeating unit having Structure (IV) or Structure (VI), or a repeating unit derived from an ethylenically unsaturated, polymerizable compound different from Structures (1 A, B or C) must be present in the copolymer.** The "second repeating monomeric unit" of Gonsalves does not meet this claimed criteria. The disclosure in Gonsalves is divided into copolymers for intended use with electron beam lithography (EBL) where the photoacid generator (PAG) is not a part of the copolymer but is a separate component, and those for UV technology where the PAG is part of the copolymer backbone.

Paragraphs 0060-0068 of Gonsalves deal with copolymers in resists formulations

having the PAG as a separate component. These paragraphs describe a copolymer of POSS with a methacrylate component (i.e., methyl methacrylate, t-butyl methacrylate or methacrylic acid). Of these methacrylate components, neither methyl methacrylate nor methacrylic acid contain an acid labile moiety as required by  $R^{12}$  of Applicant's second monomeric unit of Structure (III). Thus, Gonsalves copolymers of these paragraphs where the second monomeric unit is methyl methacrylate and/or methacrylic acid are not within the scope of Applicant's invention or claims. While t-butylmethacrylate is acid labile and would otherwise meet Applicant's second monomeric unit of structure (III), as pointed out above Applicant's claimed copolymers must meet a proviso when  $R^{12}$  is t-butyl, **namely that when  $R^{12}$  is t-butyl, an additional repeating unit having Structure (IV) or Structure (VI), or a repeating unit derived from an ethylenically unsaturated, polymerizable compound different from Structures (1 A, B or C) must be present in the copolymer.** The copolymers of Gonsalves that have a t-butyl methacrylate monomeric unit do not have Applicant's required **additional repeating unit having Structure (IV) or Structure (VI), or a repeating unit derived from an ethylenically unsaturated, polymerizable compound different from Structures (1 A, B or C).** The other possible methacrylate monomeric units mentioned in Gonsalves are not those of Structure (IV) since none of those mentioned by Gonsalves meet the structures (Va-Vg) definition for  $R^{13}$  of applicant's claims 1 and 2. Thus, the copolymers of Gonsalves mentioned in these paragraphs wherein his second monomeric unit is t-butyl methacrylate also are not within the scope of applicant's invention or claims. Therefore, this disclosure in paragraphs 0060-0068 of Gonsalves neither anticipates nor renders obvious Applicant's claimed copolymers, photosensitive compositions of these claimed copolymers, and *ipso facto* use of such copolymer containing compositions to produce a patterned image on a substrate or the resulting patterned substrate (claims 1, 22, 44 and 65).

Paragraphs 0069-0079 relate to polymers with PAGs incorporated in the polymeric chain, a different concept than applicant's invention. As with the copolymers mentioned in paragraphs 0060-0068, the copolymers of these paragraphs 0069-0079 have only the specific methacrylates monomeric units mentioned above, namely a methacrylate

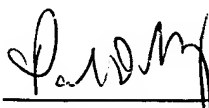
component that is methyl methacrylate, t-butyl methacrylate or methacrylic acid). As mentioned before, of these methacrylate components, neither methyl methacrylate nor methacrylic acid contain an acid labile moiety as required by  $R^{12}$  of Applicant's second monomeric unit of Structure (III). Thus, Gonsalves copolymers of these paragraphs where the second monomeric unit is methyl methacrylate and/or methacrylic acid are not within the scope of Applicant's invention or claims. While t-butylmethacrylate is acid labile and would otherwise meet Applicant's second monomeric unit of structure (III), as pointed out above Applicant's claimed copolymers must meet a proviso when  $R^{12}$  is t-butyl, **namely that when  $R^{12}$  is t-butyl, an additional repeating unit having Structure (IV) or Structure (VI), or a repeating unit derived from an ethylenically unsaturated, polymerizable compound different from Structures (1 A, B or C) must be present in the copolymer.** The copolymers of Gonsalves that have a t-butyl methacrylate monomeric unit do not have Applicant's required **additional repeating unit having Structure (IV) or Structure (VI), or a repeating unit derived from an ethylenically unsaturated, polymerizable compound different from Structures (1 A, B or C).** The other possible methacrylate monomeric units mentioned in Gonsalves are not those of Structure (IV) since none of those mentioned by Gonsalves meet the structures (Va-Vg) definition for  $R^{13}$  of applicant's claims 1 and 2. Thus, the copolymers of Gonsalves mentioned in these paragraphs wherein his second monomeric unit is t-butyl methacrylate also are not within the scope of applicant's invention or claims. Therefore, this disclosure in paragraphs 0069 to 0079 of Gonsalves neither anticipates nor renders obvious Applicant's claimed copolymers, and *ipso facto* photosensitive compositions of these claimed copolymers, use of such copolymer containing compositions to produce a patterned image on a substrate or the resulting patterned substrate (claims 1, 22, 44 and 65).

Therefore, it is respectfully submitted that these disclosure in Gonsalves destroy neither the novelty or the unobviousness of Applicant's claimed invention and the USPTO is respectfully requested to reconsider and withdraw the Section 102 and 103 rejections of claims over this publication.

It is respectfully submitted that the foregoing is a full and complete response to

the Office Action and that all the claims are allowable for at least the reasons indicated. An early indication of their allowability by issuance of a Notice of Allowance is earnestly solicited.

Respectfully submitted,

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